Please add the following new claims:

22. (New) The ceramic dispersoid in metal product of claim 18 wherein said finely sized metal carbide particles are scandium carbide.

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23. (New) The ceramic dispersoid in metal product of claim 18 wherein said finely sized metal carbide particles are vanadium carbide.

24. (New) The ceramic dispersoid in metal product of claim 18 wherein said finely sized metal carbide particles are scandium carbide.

25. (New) The ceramic dispersoid in metal product of claim 18 wherein said finely sized metal carbide particles are molybdenum carbide.

Remarks

Reconsideration of the present application as it now stands amended is respectfully requested. Claims 18 and 19 have been amended. New claims 22-25 have been added. It is respectfully submitted that the Examiner's rejections to the claims be withdrawn and the application allowed.

Claims 18-21—35 U.S.C. §112

Claims 18-21 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The Office Action stated that claim 18 appears to be incomplete. Applicants have amended claim 18 to include the phrase "finely sized metal carbide particles having an average particle size of less than about 0.3 microns, the finely sized metal carbide particles". Support for this amendment is found at page 12, lines 11-13 of the specification.

The Office Action stated that claim 20 lacks sufficient antecedent basis for the limitation "the finely sized metal carbide particles" in lines 1 and 2 with respect to claim 18. The above-identified amendment to claim 18 provides the antecedent basis.

Applicants respectfully submit that the rejection of claim 18-21 under 35 U.S.C. §112, second paragraph, be withdrawn in view of the amendment.

Claims 18, 20 and 21—35 U.S.C. §102(b)

Claims 18, 20 and 21 are rejected under 35 U.S.C. §102(b) as being anticipated by Nagle et al U.S. Patent 4,915,908.

Nagle anticipates the claimed invention. Nagle discloses a method for the production of a composite comprising a distribution of second phase particles in a metal, metal alloy, or intermetallic final matrix.

Applicants have amended the claims to recite that the finely sized metal carbide particles are selected from the group consisting of Sc, Hf, Nb, Mo, and V and the finely sized metal carbide particles. These metal carbides are not taught or suggested by Nagle.

Applicants submit that the rejection of claims 18, 20 and 21 under 35 U.S.C. §102(b) as being anticipated by Nagle et al U.S. Patent 4,915,908 be withdrawn in view of the amendment.

Claim 19—35 U.S.C. §103

Claim 19 is rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Nagle.

Claim 19 has been amended to state that the final product is a metal matrix having a uniform distribution of finely sized metal carbide particles having an average particle size of less than about 0.3 microns, the finely sized metal carbide particles selected from the group consisting of Sc, Hf, Nb, Mo, and V and the finely sized metal carbide particles (from claim 18). Nagle does not disclose or suggest such metal carbide particles.

Applicants submit that the rejection of claim 19 under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Nagle be withdrawn in view of the amendment.

It is respectfully submitted that the present application is in condition for allowance. If the Examiner would like to suggest changes of a formal nature to place this application in better condition for allowance, a telephone call to Applicants' undersigned attorney would be appreciated.

Respectfully submitted,

David W. Pearce-Smith
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Reg. No. 31285

Marked Claims

18. (Twice Amended) A ceramic dispersoid in metal product, comprising:

(a) a matrix metal of aluminum and

(b) a uniform distribution of finely sized metal carbide particles having an average particle size of less than about 0.3 microns, said finely sized metal carbide particles selected from the group consisting of Sc, Hf, Nb, Mo, and V and said finely sized metal carbide particles formed and dispersed in-situ in said metal matrix.

19. (Amended) The ceramic dispersoid in metal product of claim 18 wherein said finely sized ceramic particles are formed by the process of:

(a) providing a molten composition comprising a matrix liquid of aluminum or aluminum alloy metal and at least one of said carbide-forming elements [selected from the group consisting of Ti, Sc, Hf, Nb, Zr, Mo, and V];

(b) providing a chloride salt containing carbon particles, wherein said salt comprises NaCl and KCl in a weight/weight ratio within the range of about 0.8-1.2 and of $MgCl_2$ and $CaC1_2$ in amounts comprising up to about 5-10% by weight of the salt mixture; and

(c) reacting said chloride salt containing carbon particles in said molten aluminum alloy by vigorously stirring said aluminum alloy and said chloride salt containing carbon particles to form a mixture of said molten metal liquid in contact with a portion of said carbon particles at an elevated temperature above the liquidus of the aluminum alloy to form a unagglomerated distribution of finely sized ceramic phase particles having an average particle diameter of less than about 0.3 microns formed and dispersed in-situ in an aluminum metal matrix.